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Child Sexual Abuse and Number of Sexual Partners in Young Women: The Role of Abuse Severity, Coping Style, and Sexual Functioning

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The authors proposed and tested a model describing distinct pathways through which childhood sexual abuse (CSA) may lead to relatively low or high numbers of sexual partners in adulthood. Path analyses were conducted on survey responses of young female U.S. Navy recruits who reported CSA ($N = 547$). Use of avoidant strategies to cope with CSA was expected to produce higher levels of sexual problems and fewer heterosexual sex partners, whereas use of self-destructive coping strategies was expected to result in more dysfunctional sexual behavior and more heterosexual sex partners. As predicted, the effect of CSA on number of sex partners was largely mediated by coping strategies and dysfunctional sexual behavior.

Child sexual abuse (CSA) has been associated with numerous negative outcomes, including anxiety, depression, suicide attempts, low self-esteem, substance abuse, and problems with trust and intimacy (for reviews, see Beitchman et al., 1992; Browne & Finkelhor, 1986; Green, 1993). One of the most frequently reported findings is that sexually abused women are at increased risk for sexual difficulties ranging from avoidance of sex to compulsive sexual behavior (Browne & Finkelhor, 1986; Green, 1993; Polusny & Follette, 1995). Finkelhor and Browne (1985) proposed that CSA might produce seemingly opposing outcomes—"aversion to sex" versus "sexual promiscuity"—through the process of traumatic sexualization.

Traumatic sexualization refers to the shaping of a child's sexuality in an interpersonally dysfunctional manner, leading to lasting inappropriate associations with sexual activity and arousal. Specifically, if a child experiences high levels of revulsion, fear, anger, or powerlessness during CSA, he or she may be conditioned to associate sex with negative emotions and memories. These negative emotional reactions may subsequently generalize to non-abusive sexual experiences in adulthood, leading to sexual dysfunction, including phobic reactions to sexual intimacy and avoidance of sex.

In other cases, CSA experiences may teach the child to associate rewards, attention, and affection with engaging in sexual behavior. If this occurs, adults sexually abused as children may use sex to meet nonsexual needs (e.g., seeking love through sex, sexualizing nonsexual relationships, or using sex to manipulate others), and sexual promiscuity may result. Finkelhor and Browne's (1985) conceptualization of traumatic sexualization thus suggests that some adults sexually abused as children will engage in sexual activity with many partners, whereas others will engage in little sexual activity and have few partners.

Research on sexual behavior in adults sexually abused as children has generally found that sexually abused respondents have more sex partners than nonabused respondents. This has been documented in clinical populations and populations at high risk of contracting HIV (Cunningham, Stiffman, Doré, & Earls, 1994; Parillo, Freeman, Collier, & Young, 2001; Tsai, Feldman-Summers, & Edgar, 1979; Walser & Kern, 1996; Zierler et al., 1991) as well as in undergraduate (Johnsen & Harlow, 1996) and community (Wyatt, 1988) samples. However, a number of other studies have found no relationship between CSA and number of sex partners (Bartoi & Kinder, 1998; Noll, Trickett, & Putnam, 2000; Widom & Kuhns, 1996).

The failure of some previous studies to find a significant relationship between CSA and number of sex partners may be due to the fact that some women react to CSA with sexual avoidance rather than with increased sexual activity. In fact, Briere (2000) estimated that approximately 10% of sexually abused women avoid sex in reaction to CSA experiences. Depending on the proportional representation of women who react to CSA in different ways within a given sample, research might yield evidence of either increased or decreased numbers of sex partners among women who experienced CSA relative to those who did not, or a null effect. To begin to resolve what appear to be conflicting findings in the present literature, it is necessary to identify factors that predict whether women will react to CSA with avoidance of sex and relatively low numbers of sex partners or with high levels of sexual behavior and relatively large numbers of sex partners. No

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previous research has addressed this issue. In the present study, we considered three factors that theory and research suggest may predict number of sex partners among sexually abused women: general sexual attitudes and functioning, manner of coping with CSA, and CSA severity.

The most proximal predictor of adult sexual behavior is likely to be adult sexual attitudes and functioning. Some studies have found that sexually abused women develop negative attitudes toward sex. For example, in a randomly selected community sample, 35% of adults sexually abused as children reported a fear of sex during their lifetime (Stein, Golding, Siegel, Burnam, & Sorenson, 1988) and 33% of sexually abused women reported that their CSA experience negatively affected their ability to enjoy sex (Vogeltanz et al., 1999). In studies comparing sexually abused and nonabused women, abused women reported more negative reactions to sex (Charmoli & Athelstan, 1988; E. Gold, 1986; Johnsen & Harlow, 1996), more sexual avoidance (Matorin, 1999; but see Bartoi & Kinder, 1998), more sexual aversion (Wenninger & Heiman, 1998), and less sexual arousal (Fleming, Mullen, Sibthorpe, & Bammer, 1999; Wenninger & Heiman, 1998). In addition, compared with nonabused women, sexually abused women reported more sexual problems (Elliott & Briere, 1992; Fleming et al., 1999; Mullen, Martin, Anderson, Romans, & Herbison, 1996) and a greater prevalence of sexual disorders (Saunders, Villeponteaux, Lipovsky, Kilpatrick, & Veronen, 1992).

At the same time, there is evidence that adults sexually abused as children are more likely than nonabused adults to engage in dysfunctional sexual behavior (Briere, Elliott, Harris, & Cotman, 1995; Briere & Runtz, 1990; Briere & Zaidi, 1989; Runtz & Roche, 1999; Walser & Kern, 1996). Dysfunctional sexual behavior refers to sexual behaviors that are self-defeating or maladaptive, such as having sex with strangers, having secret sex, and using sex to gain affection, to cope with distress, or to feel powerful. Because it often entails engaging in sexual activity to satisfy other types of needs, dysfunctional sexual behavior implies higher levels of sexual activity and larger numbers of sexual partners. In fact, there is evidence that dysfunctional sexual behavior is associated with larger numbers of sex partners (Briere, 1995; Runtz & Roche, 1999). In the present study, we investigated the possibility that CSA may result in either high or low numbers of sex partners depending on whether women display sexual problems or dysfunctional sexual behavior in response to CSA.

In addition, we hypothesized that the strategies sexually abused women use to cope with CSA in its immediate aftermath may exert a long-term influence on their sexual attitudes and functioning, thereby influencing their number of sex partners in young adulthood. Previous research has linked the use of both avoidant coping (e.g., avoidance, denial, distancing, disengagement; Coffey, Leitenberg, Henning, Turner, & Bennett, 1996; Johnson & Kenkel, 1991; Leitenberg, Greenwald, & Cado, 1992; Perrott, Morris, Martin, & Romans, 1998; Shapiro & Levendosky, 1999; Sigmon, Greene, Rohan, & Nichols, 1996) and self-destructive coping (e.g., risk-taking behaviors, substance abuse; Johnson & Kenkel, 1991) with negative psychological outcomes in adults sexually abused as children.

Although it has been suggested that adult sexual behavior may also be influenced by the strategies used to cope with CSA (S. R. Gold, Sinclair, & Balge, 1999), the one study that examined the relationship between coping and sexuality in sexually abused women did not find the expected association (S. R. Gold, Milan,

Mayall, & Johnson, 1994). However, Gold et al. (1994) divided coping into expressive and nonexpressive strategies, with nonexpressive coping incorporating a broad range of negative coping strategies including avoidant, self-destructive, nervous/anxious, and cognitive strategies. If different forms of negative coping have different effects, combining them into a single measure may obscure their impact on sexual behavior. In fact, it is plausible that avoidant and self-destructive forms of coping may have contrasting effects on sexual attitudes and behavior. Women who use avoidant strategies to cope with the CSA may continue to use avoidant strategies in response to distress in adulthood. For women who developed negative associations with sex, sexual activity may cause distress, leading to avoidance of sex and therefore fewer sex partners. Women who use self-destructive strategies to cope with CSA may also continue to use such strategies in adulthood. For these women, sex may be used as a way to escape or reduce distress, resulting in large numbers of sex partners.

Finally, we proposed that the severity of CSA affects number of sex partners, both directly and through its effect on coping and sexual functioning. We included CSA severity because of the expectation that more severe forms of CSA would produce stronger effects on a range of outcomes, including coping and sexual functioning and behavior. Previous studies have shown that CSA severity—assessed using global severity ratings by independent raters—is positively associated with number of sex partners (Walser & Kern, 1996; Wyatt, 1988). In addition, CSA involving intercourse (Fergusson, Horwood, & Lynskey, 1997; Guimond, 2001), longer duration (Guimond, 2001; but see Langmade, 1983), and larger age difference between victim and perpetrator (Guimond, 2001) has been associated with higher numbers of sex partners. Research has also examined associations between CSA severity and self-reported measures of sexual functioning, with mixed results; some studies (Charmoli & Athelstan, 1988; Elliott & Briere, 1992; Fleming et al., 1999; Kinzl, Traweger, & Biebl, 1995; Sarwer & Durlak, 1996; Saunders et al., 1992; Wind & Silvern, 1992) have reported significant associations, whereas others (Briere & Zaidi, 1989; S. R. Gold et al., 1994; Roesler & McKenzie, 1994; Runtz & Roche, 1999) have not. Finally, CSA severity has consistently been found to be associated with increased use of maladaptive coping strategies, both in previous research using the present sample (Merrill, Thomsen, Sinclair, Gold, & Milner, 2001) and in other samples (Coffey et al., 1996; Leitenberg et al., 1992; Perrott et al., 1998; Runtz & Schallow, 1997; Steel, Wilson, Cross, & Whipple, 1996).

In the present study, we proposed and tested a model that posits separate pathways by which CSA might lead to larger or smaller numbers of heterosexual sexual partners. In one pathway, avoidant coping in the immediate aftermath of CSA was hypothesized to result in negative sexual attitudes and sexual problems; these problems in sexual functioning, in turn, were predicted to result in low numbers of sexual partners. In the other pathway, use of self-destructive strategies to cope with CSA was hypothesized to lead to dysfunctional sexual behavior and thereby to increased numbers of sex partners in young adulthood. The model, depicted in Figure 1, includes both direct and mediated effects of CSA severity on number of sex partners. The direct path was included to examine the possibility that increased CSA severity is associated with higher numbers of sex partners above and beyond the effects that can be accounted for by coping and young adult sexual functioning. We tested the model on a large sample of young

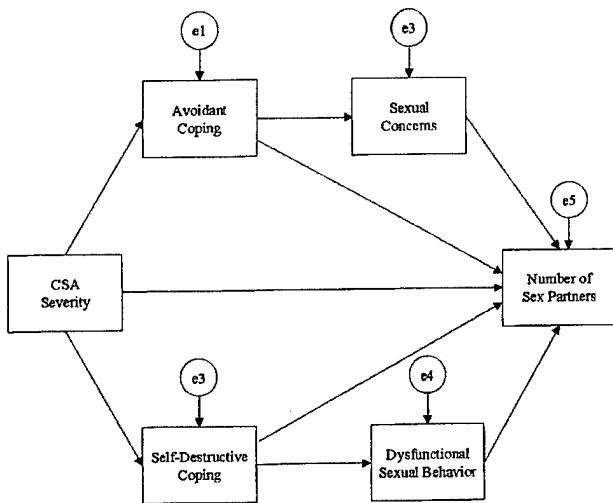


Figure 1. Hypothesized path model predicting number of sex partners among sexually abused women. CSA = childhood sexual abuse.

women using path analytic techniques; to cross-validate the model and establish the robustness of the solution, we divided our sample into two groups and tested the model simultaneously for both.

Method

Participants

Participants were groups of female U.S. Navy recruits in their first week of basic training. Of 5,473 recruits invited to complete the survey, 5,226 (96%) agreed to participate. Participation rates across groups ranged from 59% to 100%. CSA experiences were reported by 1,267 (24%) of respondents. Because the majority of participants (87% of the full sample; 83% of sexually abused women) were single and because sexual behavior is likely to differ as a function of marital status, only sexually abused women who had never been married were selected for the present study ($N = 1,052$).

Some participants who met criteria for CSA were eliminated because they had invalid profiles (6.7%) or provided incomplete responses (4.0%) to the validity scales of one of our measures, the Trauma Symptom Inventory (TSI; Briere, 1995). Additional participants (38%) were eliminated because of missing data on one or more of the study variables.¹ After excluding these participants, the final sample consisted of 547 female recruits. The average participant was young ($M = 19.27$ years, $SD = 1.85$) and had a high school diploma (88%). Respondents were diverse in terms of ethnicity (63% White, 17% African American, 12% Latina, 8% other) and family socioeconomic status (SES; 39% less than \$24,999; 38% \$25,000–\$49,999; 23% \$50,000 or more).

Measures

Demographic and personal history questionnaire. In addition to general background information (e.g., age, ethnicity, marital status), this questionnaire asked participants to indicate lifetime number of heterosexual sex partners, including voluntary and involuntary, with options ranging from 0 to 50 or more.

CSA. Childhood sexual experiences were assessed using a modified version of the Sexual Events Questionnaire (Finkelhor, 1979). Respondents were asked to report any sexual contact experienced before the age of 18 with a family member or with a nonfamily member who was 5 or more years older. For each such experience that a respondent reported, she was

asked to provide further information, including her relationship to the perpetrator, whether physical force or threats had been involved, whether it involved penetration, and the number of times it happened (on a scale ranging from 0 to 99). Participants were classified as having experienced CSA only if they reported one or more contact sexual experiences before the age of 14 with someone at least 5 years older.

The additional information that CSA respondents provided about their sexual abuse experience(s) was used to create a variable indexing the severity of CSA. Although researchers have sometimes considered the effects of individual CSA characteristics in isolation, CSA characteristics tend to be moderately to highly intercorrelated (Banyard & Williams, 1996; Feinauer, Mitchell, Harper, & Dane, 1996; McClellan, Adams, Douglas, McCurry, & Storck, 1995). As a result, combining several CSA characteristics into a single index of CSA severity is likely to provide a more reliable measure than specific characteristics considered individually.

In the present study, we created a global index of CSA severity by combining several CSA characteristics that have been shown individually to predict more severe outcomes (Fergusson & Mullen, 1999). Respondents received 1 point on the severity index for each of the following: (a) penetration, (b) force or threats, (c) father or stepfather as perpetrator, (d) more than one perpetrator, and (e) more than five incidents. The CSA severity index thus ranged from 0 to 5. In the present sample, 64% of participants had experienced intercourse, 62% reported force or threats, 21% identified a father or stepfather as the perpetrator, 26% identified more than one perpetrator, and 53% reported more than five incidents. Corrected item-total correlations for the five indicators comprising the severity index ranged from .24 to .42, yielding an overall scale reliability of .60. The relatively low reliability of the severity index was not unexpected, as its constituent items assess related but distinct characteristics of CSA experiences in a cumulative fashion rather than one unified factor.

Coping. A modified version of the How I Deal With Things Scale (Burt & Katz, 1987) was used to assess coping (see Merrill et al., 2001, for information about scale modifications). Respondents who had experienced CSA were asked to rate the frequency (1 = rarely, 5 = usually) with which they used each of 30 coping strategies to deal with their childhood sexual experience(s) "in the weeks and months after it first occurred." Responses were used to create subscales assessing self-destructive coping (e.g., running away from home, using alcohol and drugs, contemplating suicide; eight items) and avoidant coping (e.g., suppressing thoughts and feelings, avoiding reminders of the abuse, staying home as much as possible; seven items). None of the items had any sexual content. Scores on each coping scale were computed by averaging responses to the relevant items, yielding a range of 1–5 for each scale. In the present sample, internal consistencies (Cronbach's alpha) were .76 for self-destructive and .80 for avoidant coping.

¹ A respondent was considered to have missing data on a measure if she failed to complete more than 10% of the scale items. If a respondent failed to complete 10% or fewer of the items, her missing response(s) were replaced with her own mean response across the remaining scale items. Rates of missing data for specific measures were as follows: number of sex partners, 1%; CSA severity index, 22%; TSI SC Scale, 4%; TSI DSB Scale, 3%; avoidant coping, 16%; and self-destructive coping, 25%. Those excluded from the sample because of missing or invalid data did not differ from those retained on coping strategies, sexual functioning variables, SES, or education. However, compared with included cases, excluded cases were older, $M_s = 19.63$ versus 19.27 , $t(663) = 2.36$, $p < .05$, and reported less severe CSA, $M_s = 1.96$ versus 2.26 , $t(344) = 2.61$, $p < .01$. In addition, non-White respondents were disproportionately likely to be excluded, $\chi^2(3, N = 925) = 11.32$, $p < .05$. As these differences were quite small ($\phi_s < .12$), it is unlikely that our results were significantly biased by the exclusion of those with missing data. Nonetheless, we empirically examine the impact of missing data on our findings in the Results section.

Table 1
Intercorrelations and Descriptive Statistics for Study Variables

Observed variable	1	2	3	4	5	6
1. Sexual abuse severity	—	.28**	.32**	.11	.14*	.19**
2. Self-Destructive Coping Scale	.35**	—	.50**	.38**	.32**	.20**
3. Avoidant Coping Scale	.31**	.48**	—	.22**	.14*	-.04
4. Sexual Concerns Scale	.09	.30**	.18**	—	.66**	.32**
5. Dysfunctional Sexual Behavior Scale	.10	.31**	.11	.67**	—	.47**
6. No. of sex partners	.14*	.27**	-.01	.33**	.46**	—
<i>M</i>	2.26	1.64	2.89	55.81	61.86	8.93
<i>SD</i>	1.44	0.71	1.04	11.99	16.61	9.29

Note. Correlations above the diagonal are for the anonymous condition ($n = 289$); those below the diagonal are for the identified condition ($n = 258$).

* $p < .05$. ** $p < .01$.

Sexual functioning. Two scales from the TSI were used to assess current sexual functioning. The TSI is a 100-item measure of psychological sequelae of traumatic events. Each item describes a symptom, which is rated for frequency of occurrence in the past 6 months (0 = *never*, 3 = *very often*). The TSI includes three validity scales (Response Level, Atypical Response, and Inconsistent Response) that assess the tendency of respondents to endorse items with low base rates of endorsement or to respond inconsistently. As described above, participants with invalid profiles based on responses to these three scales were excluded from all analyses.

In addition to the three validity scales, the TSI contains 10 clinical scales, including measures of dysfunctional sexual behavior and sexual concerns. The Dysfunctional Sexual Behavior (DSB) Scale assesses sexual behaviors that are self-defeating or maladaptive because of an indiscriminate quality, potential for self-harm, or use for nonsexual purposes. The Sexual Concerns (SC) Scale assesses self-reported sexual distress, including sexual dissatisfaction, sexual functioning problems, and unwanted sexual thoughts or feelings (Briere, 1995). Neither scale includes any items explicitly assessing number of sex partners or frequency of sexual behavior. Scores on each scale were computed by summing ratings of the relevant items. Raw scores were converted to T scores ($M = 50$, $SD = 10$) using norms provided by Briere (1995). Briere reported that the SC and DSB Scales were internally consistent, with alpha coefficients ranging from .80 to .89 for the SC and from .77 to .89 for the DSB. In the current sample, reliabilities were .86 and .88 for the SC and DSB Scales, respectively.

Procedure

The measures used in the present study were part of a more extensive survey package administered to female Navy recruits during their first week of basic training at the Naval Recruit Training Center in Great Lakes, Illinois, between June 1996 and June 1997. Potential participants were provided with a Privacy Act statement and an informed consent form, which were presented both verbally and in writing. Recruits were instructed that filling out the questionnaire was strictly voluntary and that a decision not to participate would carry no adverse consequences for them. They were also informed that they could leave any part of the survey blank and that they could stop at any time they wished.

A nonmilitary female proctor administered the survey package to groups of 30 to 50 female recruits. Participants were given 3 hr to complete the questionnaires, with breaks scheduled periodically. Respondents were randomly assigned to either an anonymous or an identified condition. Participants in the anonymous condition ($n = 289$) were informed that their responses would be completely anonymous and did not provide any identifying information. In contrast, because they were recruited to participate in a longitudinal study, respondents in the identified condition ($n = 258$) were informed that their responses would be confidential but not anonymous; these respondents were asked to provide identifying information.

Results

Table 1 displays the descriptive statistics for the study variables.² As a group, participants experienced CSA of moderate severity ($M = 2.26$, range = 0 to 5) and used avoidant coping to a greater extent than self-destructive coping in the weeks and months after CSA. Mean T scores for the SC Scale were within one standard deviation of the standardized mean, with 20% of participants scoring above the recommended clinical cutoff score of 65 (Briere, 1995). Mean T scores for the DSB Scale were within two standard deviations of the standardized mean, with 27% of participants scoring above the recommended clinical cutoff score of 65. Number of sex partners ranged from 0 to 50 or more, with 6.4% of the sample reporting that they had never had sex and 34.7% reporting 10 or more lifetime sex partners. Because of this variable's positive skew, the median (6) or modal (3 and 4) number of sex partners may be more representative of the sample than is the mean.

Before testing our hypotheses, we conducted analyses to ensure that parametric assumptions for statistical analyses were met. Four

² We examined whether scores on any of the main study variables varied as a function of anonymity condition or demographics. On no study variable did scores differ by condition, and only two associations with demographics were significant: Age was related to number of sexual partners ($r = .22$, $p < .05$), and self-destructive coping was higher for White than for Black participants, $F(3, 532) = 4.13$, $p < .01$. To ensure that these demographic differences did not confound our results, we conducted preliminary multiple regression analyses predicting number of sex partners with and without entering demographic factors on the first step. The same four study variables (CSA severity, dysfunctional sexual behavior, self-destructive coping, and avoidant coping) were significant predictors in both cases. In additional analyses, we entered all two-way interactions between demographic and study variables on the third step of the regression analysis. No interactions were significant, indicating that relationships between number of sex partners and the other study variables did not vary as a function of demographics. Finally, we ran a version of our path analytic model that included age as an exogenous variable predicting number of sex partners. Although the model including age increased our variance accounted for by 4% in the anonymous group and 8% in the identified group, it had no effect on the relationships between other variables in the model. Because our primary interest was not in predicting as much variance as possible in number of sex partners but in identifying factors that mediate the relationship between CSA severity and number of sex partners, we chose not to include age in our final model.

of the observed variables (self-destructive coping, sexual concerns, dysfunctional sexual behavior, and number of sex partners) exhibited substantial positive skew and were therefore subjected to logarithmic transformations. Subsequent analyses revealed no evidence of univariate or multivariate outliers and no problems with multicollinearity. All analyses reported below used these transformed variables.

Table 1 also shows the intercorrelations among study variables, separately for the anonymous and identified condition. In both conditions, number of sex partners was significantly and positively correlated with CSA severity, dysfunctional sexual behavior, sexual concerns, and self-destructive coping but not with avoidant coping. CSA severity was associated with greater use of both types of coping strategies but was unrelated to sexual functioning. The two sexual functioning variables were strongly correlated, as were the two coping strategies.

We used path analysis to investigate the processes through which CSA severity, coping, and sexual functioning relate to number of sex partners in sexually abused women. The proposed model (see Figure 1) suggests that severe CSA leads to increased use of both avoidant and self-destructive coping strategies in the weeks and months following the abuse. Avoidant coping then leads to lower numbers of sex partners both directly and through sexual concerns; in contrast, self-destructive coping leads to higher numbers of sex partners both directly and through dysfunctional sexual behavior. All path analyses were conducted using the maximum likelihood algorithm in Amos 4.01 (Arbuckle, 1999), with regression weights for error terms standardized at 1.0. To allow for cross-validation and to assess for differences due to condition (anonymous, $n = 289$; identified, $n = 258$), we tested the model on both conditions simultaneously. Simultaneous group analysis provides one set of fit indices for both conditions and separate path estimates for each condition, and it allows for a comparison across groups.

Fit statistics are presented in Table 2. Because the chi-square test is very sensitive to sample size, we relied primarily on other fit indices to assess the adequacy of our model. The three indices we report range from 0 to 1, with values greater than .90 generally being interpreted as reflecting adequate fit (Jöreskog & Sörbom, 1993). Across the anonymous and identified conditions, the full model (Model 1) provided a poor fit to the data. In both conditions, the path from sexual concerns to number of sex partners was not

significant, $t_s < 0.80$, $p > .10$. Consequently, sexual concerns was removed from the model. After examining residuals and modification indices, the model was also modified to allow the errors associated with avoidant and self-destructive coping to covary. The reduced model (Model 2) provided a good fit to the data and accounted for 26% (anonymous) and 22% (identified) of the variance in number of sex partners. The direct path from CSA severity to number of sex partners was significant in the anonymous group, $t(284) = 3.04$, $p < .01$, but not in the identified group, $t(253) = 1.50$, $p > .10$. In addition, the path from self-destructive coping to number of sex partners was significant in the identified group, $t(253) = 3.02$, $p < .01$, but only approached significance in the anonymous group, $t(284) = 1.91$, $p < .10$. All other paths were significant in both groups, $t_s > 4.99$, $ps < .01$. Through an iterative process, we sequentially set the loadings of paths nonsignificant in either condition to 0 and examined the consequences for model fit. Removal of the path from CSA severity to number of sex partners (Model 3) resulted in a significant decrement in fit, $\chi^2_{\text{diff}}(2, N = 547) = 11.28$, $p < .01$. Removal of the path from self-destructive coping to number of sex partners (Model 4) also decreased model fit, $\chi^2_{\text{diff}}(2, N = 547) = 12.50$, $p < .01$. Therefore both paths were retained for the final model.

Path coefficients for the final model (Model 2; the reduced unconstrained model) are displayed in Figure 2. The final model suggests that CSA severity is related to number of sex partners through multiple paths. CSA severity indirectly affected number of sex partners through its effects on avoidant and self-destructive coping, and self-destructive coping had both direct effects and indirect effects through dysfunctional sexual behavior ($p < .05$). The direct effect of CSA severity on number of sex partners was significant in only one group. Next, Model 2 was analyzed with cross-group equality constraints. That is, path coefficient parameters were constrained to be equal across conditions to investigate whether differences between conditions were significant. All paths were significant in both groups, $t_s > 3.28$, $ps < .01$, and the model accounted for 27% and 24% of the variance in number of sex partners for the anonymous and identified conditions, respectively. A comparison of the path models with and without cross-group equality constraints showed no significant difference in fit, $\chi^2_{\text{diff}}(7) = 3.78$, $p > .10$. Thus, the model provided a good fit for both groups.

Table 2
Comparison of the Fit of Alternative Path Models of the Relations Among Childhood Sexual Abuse, Coping, Sexual Functioning, and Number of Sex Partners

Model	df	$\chi^2(N = 547)$	1 - RMSEA	GFI	AGFI	χ^2_{diff}
Model 1: Full	12	439.59**	0.64	0.83	0.38	
Model 2: Reduced A	4	1.71	1.00	0.99	0.99	
Model 2 vs. Model 1	8					437.88**
Model 3: Reduced B	6	12.98*	0.95	0.99	0.95	
Model 3 vs. Model 2	2					11.28**
Model 4: Reduced C	6	14.21*	0.95	0.99	0.95	
Model 4 vs. Model 2	2					12.50**
Model 2 (constrained)	11	5.49	1.00	0.99	0.99	
Model 2 constrained vs. unconstrained	7					3.78

Note. RMSEA = root-mean-square error of approximation; GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index.

* $p < .05$. ** $p < .01$.

We conducted additional analyses to examine the effects of missing data on our findings. Several techniques for dealing with missing data are available, including maximum likelihood estimation, Bayesian estimation, and simple- or multiple-imputation techniques, although no technique for dealing with missing data is unbiased when data are nonignorably missing (i.e., when values of the variable itself are associated with whether the variable is missing; Schafer & Graham, 2002; Sinharay, Stern, & Russell, 2001). In the present study, we used the full information maximum likelihood technique (FIML) available in Amos 4.01 (Arbuckle, 1999), which uses all available data to estimate parameters using a maximum likelihood criterion. FIML provides unbiased, consistent, and efficient parameter estimates under a wide range of conditions (Arbuckle & Wothke, 1999). When we reestimated the path model including all available cases, sample size was increased substantially, to 942 (482 anonymous, 460 identified). However, the pattern of effects was no different from that reported previously. Thus, there is no evidence to suggest that our findings were biased by the exclusion of participants with missing data on one or more measures.

Finally, to supplement the path analysis, we conducted a categorical analysis that examined whether number of sex partners differed on the basis of the predominant coping strategy used by sexually abused women. Participants were classified into four groups based on median splits of the avoidant and self-destructive coping scales: primarily avoidant, primarily self-destructive, neither avoidant nor self-destructive, or both avoidant and self-destructive. As in the other analyses reported, number of sex partners was log-transformed prior to conducting the analysis. However, for clarity of presentation, descriptive information is presented in the original response metric (see Table 3). As expected, women categorized as self-destructive had the most sex partners, those categorized as avoidant had the fewest sex partners, and those using neither or both types of coping strategies were intermediate between the other two groups, $F(3, 543) = 3.13, p < .05$. However, only the primarily avoidant group and the primarily self-destructive groups differed significantly (see Table 3).

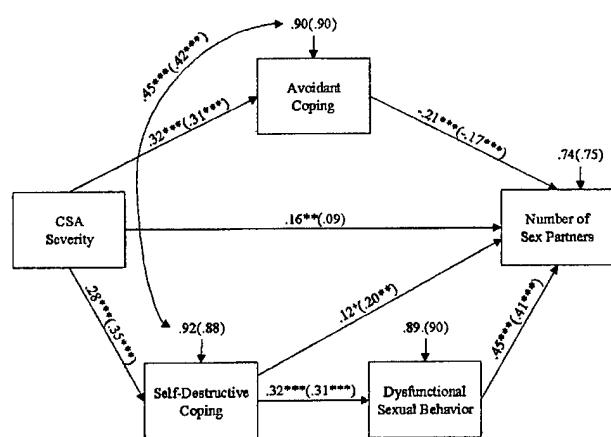


Figure 2. Final path model predicting number of sex partners among sexually abused women without equality constraints, estimated separately for participants in the anonymous ($n = 289$) and identified ($n = 258$) conditions. Coefficients in parentheses are for the identified condition. CSA = childhood sexual abuse. $^+p < .10$. $^{**}p < .01$. $^{***}p < .001$.

Table 3

Descriptive Statistics for Number of Sex Partners by Predominate Coping Strategy

No. of sex partners	Avoidant	Self-destructive	Both	Neither
<i>M</i>	7.81 _a	11.21 _b	9.42 _{a,b}	7.89 _{a,b}
<i>SD</i>	9.10	11.29	8.79	8.70
<i>Mdn</i>	5.00	8.00	7.00	5.00

Note. Means that share a common subscript do not differ significantly.

Discussion

Previous research has suggested the existence of great variability in the sexual functioning and behavior of women sexually abused as children, with some studies showing that sexually abused women display high levels of sexual activity and possess large numbers of sex partners (e.g., Johnsen & Harlow, 1996; Wyatt, 1988) and others showing that sexually abused women are prone to exhibiting sexual avoidance and sexual problems (e.g., Fleming et al., 1999; Matorin, 1999). The present study is the first to directly examine and attempt to shed light on these paradoxical patterns of CSA effects on women's sexuality. Our model postulated two distinct pathways through which CSA severity affects young women's number of heterosexual sex partners, each associated with the use of a different type of coping strategy. In one pathway, CSA severity was predicted to increase self-destructive coping, and self-destructive coping, in turn, was proposed to promote dysfunctional sexual behavior and larger numbers of sex partners. In the other pathway, CSA severity was predicted to increase avoidant coping, and avoidant coping, in turn, was proposed to promote increased sexual concerns and lower numbers of sex partners.

As predicted, women who experienced CSA of greater severity (e.g., involving intercourse, use of force, father-figure as a perpetrator, multiple perpetrators and incidents) reported greater use of both avoidant and self-destructive coping strategies than did those who experienced less severe CSA. Because more severe CSA is likely to produce greater distress, it is not surprising that women experiencing severe abuse would be motivated to pursue a variety of coping strategies. This finding was documented in a previous article that used the present sample (Merrill et al., 2001)³ and has been reported in several other samples (Coffey et al., 1996; Leitenberg et al., 1992; Perrott et al., 1998; Runtz & Schallow, 1997; Steel et al., 1996).

Our results confirmed hypotheses regarding the effects of self-destructive coping. Use of self-destructive coping in response to CSA was positively associated with both dysfunctional sexual behavior and number of sex partners, and dysfunctional sexual behavior was positively associated with number of sex partners. This suggests that sexually abused women who initially cope with abuse in self-destructive ways may be prone to continued use of self-destructive strategies, such as engaging in dysfunctional sex-

³ Merrill et al. (2001) documented increased use of adaptive as well as avoidant and self-destructive coping strategies among participants with more severe abuse. However, CSA severity and coping as predictors of sexual functioning and behavior have not been previously studied in this sample or in any other sample.

ual behavior and having sex with multiple partners as a means of coping with later distress (Cooper, Shapiro, & Powers, 1998; Polsuny & Follette, 1995). Both dysfunctional sexual behavior and a high number of sex partners might be considered a continuation of self-destructive coping in that they increase risk for other negative outcomes, such as sexually transmitted disease (Erickson & Trocki, 1992; Michael et al., 1998; Seidman, Mosher, & Aral, 1992) and sexual (re)victimization (S. R. Gold et al., 1999; Koss & Dinero, 1989; Mandoki & Burkhart, 1989; Mayall & Gold, 1995; Merrill et al., 1999).

Hypotheses regarding the effects of avoidant coping were also generally supported. Women who reported more extensive use of avoidant coping strategies in dealing with CSA reported higher levels of sexual concerns and lower numbers of sex partners than did those who were less reliant on avoidant coping strategies. However, contrary to predictions, the effect of avoidant coping on number of sex partners was not mediated by sexual concerns; in fact, sexual concerns was dropped from the path model because it was not a significant predictor of number of sex partners. One reason why sexual concerns did not predict number of sex partners in the final model may be because our measure of sexual concerns tapped a broad range of issues related to sexuality, including some that would not be expected to be associated with avoidant coping and reduced number of sexual partners (e.g., intrusive thoughts about sex). It is possible that a more focused measure of sexual problems—one that explicitly targeted negative attitudes toward sex and problems in sexual functioning—would provide evidence that sexual problems mediate between avoidant coping and number of sex partners.

Although self-destructive and avoidant coping had opposing effects on number of sexual partners, the two forms of coping were themselves strongly and positively correlated ($r = .50$). It appears that many sexually abused women use both types of maladaptive coping strategies. Sexually abused women may use different coping strategies in different situations (e.g., avoidant strategies in sexual contexts and self-destructive strategies in family contexts) or their use of coping strategies may vary over time (e.g., avoidant strategies initially, shifting to self-destructive strategies if avoidance proves ineffective at alleviating distress). Alternatively, individuals may use both strategies simultaneously or may alternate between them. In any case, our results suggest that sexually abused women are likely to have relatively higher or lower numbers of sex partners depending on whether they are more reliant on self-destructive or avoidant coping strategies.

Although both forms of coping had significant effects on number of sex partners, the positive effect of self-destructive coping was stronger than the negative effect of avoidant coping. This may reflect that fact that self-destructive coping and dysfunctional sexual behavior served to enhance an already positive relationship between CSA severity and number of sex partners, whereas avoidant coping inhibited the relationship. In other words, the negative effect of avoidant coping on number of sex partners was competing with the positive direct relationship between CSA severity and number of sex partners. Consistent with this, although increased use of avoidant coping was associated with a lower number of sex partners, avoidant coping was not associated with a low number of sex partners in absolute terms. In fact, on average women in the avoidant coping group had nearly eight sex partners. It is also important to keep in mind that women who rely on avoidant coping strategies in the aftermath of CSA do not neces-

sarily manifest sexual avoidance in adulthood. Theoretically, avoidant coping should produce sexual avoidance only if avoidance proves effective at alleviating the distress that arises in sexual situations. If a woman does not experience such distress, then sexual avoidance may not be a likely outcome.

In the present study, we interpreted high numbers of sex partners as reflecting self-destructive or high-risk behavior and low numbers of sex partners as reflecting avoidance of sex and sexual problems. Although our results provide some support for this interpretation, it is undoubtedly an oversimplification. There are clearly numerous factors beyond sexual attitudes and coping behavior that may influence the number of sex partners of women. For example, women with few or no sex partners may be motivated by cultural or religious reasons rather than by an aversion to sex. Similarly, some women may have many sex partners because they have a high sex drive and having many partners need not be as risky if the partners are carefully chosen and if safe sex behaviors are practiced. The high variability in number of sex partners observed in the present sample—even within groups using similar strategies for coping with CSA—is consistent with this logic.

Number of sex partners is an important variable to study, in part because it has clear implications for risk of sexual victimization. It has been well documented that women with many heterosexual sex partners are more likely to be sexually assaulted than those with fewer partners (S. R. Gold et al., 1999; Koss & Dinero, 1989; Mayall & Gold, 1995; Mandoki & Burkhart, 1989; Merrill et al., 1999). However, collecting information about other aspects of sexuality in addition to number of sex partners would afford a better understanding of the manner in which the process by which CSA affects women's sexuality. It might be especially instructive to collect specific information regarding women's feelings about sexual activity (e.g., distress, satisfaction, fear), the frequency and variety of their sexual behavior, their motives for engaging in or avoiding sexual activity, their use of safe sex practices, and symptoms of sexual avoidance and sexual dysfunction. A more complete understanding of the effects of CSA on sexuality might also be gained by asking women about their sexual experiences with same-sex as well as opposite-sex partners.

In addition to its mediated (indirect) effects through coping and sexual functioning, CSA severity also had a significant direct effect on number of sex partners (also see Guimond, 2001; Walser & Kern, 1996; Wyatt, 1988). This suggests that the impact of CSA severity on number of sex partners is only partially explained by the increased use of avoidant and self-destructive coping and of destructive sexual behavior; there must be other mechanisms, as well, that explain the increased level of sex partners associated with increasingly severe CSA. Guimond (2001) suggested that severity-related characteristics such as high frequency, long duration, and penetration may socialize sexually abused women to begin engaging in sexual behavior earlier and with more partners because it is a familiar way to relate to others. Such a notion is consistent with traumagenic dynamics theory (Finkelhor & Browne, 1985). Other possible mediators of the relationship between CSA severity and number of sex partners include self-blame (Westerlund, 1992) and alcohol and drug use (Morrill, Kasten, Urato, & Larson, 2001; Murstein & Holden, 1979; NIMH Multi-site HIV Prevention Trial Group, 2001; Santelli, Brener, Lowry, Bhatt, & Zabin, 1998; Valois, Kammermann, & Drane, 1997).

Several limitations of the present research should be noted. As is common in CSA research, we relied on self-report measures,

which are susceptible to biased responding. Although we attempted to minimize the impact of biased responding on our results by excluding participants who had invalid scores on the TSI and attempted to examine the effects of response bias by comparing the responses of anonymous and identified participants, these procedures do not guarantee accurate reporting. In addition, our measures of CSA severity and coping were retrospective. Memory for past traumatic events may be inaccurate because of reaction to trauma as well as normal memory reconstruction and decay. Moreover, these biases may be more pronounced among those who rely on avoidant coping strategies. However, the finding that CSA severity was positively associated with avoidant coping indicates that use of avoidant coping strategies does not preclude recall of CSA experiences. In terms of the specific measures used, our measure of coping was originally developed to assess coping with adult sexual assault. Although the scale was altered to make it more applicable to coping with CSA, some items may not be applicable to children, and the scale may not include some responses that occur in sexually abused children but not in women sexually abused as adults. Our measure of CSA severity has not previously been validated, although its constituent items have individually been shown to relate to sexual functioning and behavior, as well as other outcomes. The CSA severity measure also demonstrated a relatively low level of internal consistency. This is not surprising, as the measure indexed the number of different severity factors present, rather than assessing one homogeneous construct. It is important to note that CSA severity showed significant associations with several other variables despite its relatively low reliability; we would expect to observe stronger empirical relations between severity and other constructs if severity could be measured with greater reliability. Finally, because our measure of number of sex partners assessed only heterosexual partners, the present results cannot be extended to predict number of homosexual partners.

Our sample presents both strengths and weaknesses. On the positive side, our sample came from a nonclinical, nonstudent population, which is relatively unusual for research on CSA. Participants came from a wide range of socioeconomic backgrounds, and 37% were ethnic minorities. Because our preliminary analyses indicated that our results were robust across SES, ethnicity, and the other demographic variables considered (see Footnote 2), the diversity of our sample in these respects increases the generalizability of our findings. On the other hand, our sample was homogeneous in some respects; it included only single women, and most of them were young. Sexual attitudes and behaviors may change over time as women enter different life stages and/or marry. In addition, women who enlist in the military may be different from those who are in the workforce or who choose to attend college. Replication of the present study with other populations, particularly with community samples and older women, would enhance external validity. Pending the replication of this study with men, it is also important to bear in mind that the present results may not generalize to sexually abused men.

Another advantage of our sample was its size; our path model was tested on a sample of over 500 sexually abused women. This allowed us to conduct an internal replication by fitting our path model separately for participants in the anonymous and identified conditions. Despite minor differences between solutions for the two conditions considered separately, the overall analysis indicated that the solutions for the two groups were not significantly

different. This internal replication adds weight to our findings and suggests that they are reliable for the population studied.

Although path modeling suggests an order of effects that implies causation, it is premature to conclude that CSA causally affects adult sexuality. The present data are correlational in nature and, as such, do not afford causal conclusions. We assumed that coping strategies used in response to CSA preceded adult sexuality because we expected that participants were victimized prior to engaging in consensual sexual relationships. However, maladaptive coping strategies may develop only after a woman has been confronted with sexual situations that may trigger memories of the abuse. Sexual functioning and number of sex partners may also exhibit reciprocal causal relations. Thus, the associations between variables are likely to be more complex and dynamic than the present model implies. Finally, other aspects of childhood experience (e.g., domestic violence, parenting behavior) may covary with CSA; definitive causal conclusions require that the impacts of such potential confounds be examined or statistically controlled. Longitudinal research tracking the development of adult sexuality in men and women sexually abused as children over time would afford less ambiguous conclusions about the causal relationships between CSA and adult sexual behavior. Such longitudinal research would also be useful for examining whether different types of coping strategies emerge at different times in the aftermath of abuse and for disentangling the effects of avoidant and self-destructive coping on sexual behavior.

The present study has implications for sexually abused women's quality of life. Sexually abused women who report experiencing sexual avoidance may have difficulty in relationships. Sexual problems can lead to feelings of inadequacy and a decrease in life satisfaction (Westerlund, 1992). A large number of sex partners and indiscriminant sexual contacts can also have severe consequences. It can increase a woman's risk for contracting a sexually transmitted disease, such as AIDS (Cunningham et al., 1994; Zierler et al., 1991), and for sexual assault as an adult (S. R. Gold et al., 1999; Koss & Dinero, 1989; Mayall & Gold, 1995; Mandoki & Burkhart, 1989; Merrill et al., 1999). Our results suggest that decreasing self-destructive coping may be one way to reduce high-risk sexual behavior. In addition, learning adaptive coping strategies may teach women to satisfy their emotional needs in ways other than through sex and decrease their risk of being retraumatized.

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14. ABSTRACT (maximum 200 words)

Theory and research suggest that childhood sexual abuse (CSA) may lead to either avoidance of sex or compulsive sexual behavior. We proposed and tested a model that specified different pathways through which these divergent outcomes may occur. CSA victims who used avoidant strategies to cope with abuse were expected to display higher levels of sexual problems and to have fewer sex partners as adults. In contrast, CSA victims who used self-destructive strategies to cope with abuse were expected to display more dysfunctional sexual behavior and to report a higher number of sex partners as adults. Predictions were tested using data from a sample of female U.S. Navy recruits who reported CSA experiences ($N = 547$). As expected, the results indicated that the effects of CSA on number of sex partners were largely mediated by coping strategy and dysfunctional sexual behavior.

14. SUBJECT TERMS

child sexual abuse; dysfunctional sexual behavior, coping

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